Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Currently Amended) A modular vehicle system controller for use with a hybrid electric vehicle, said controller ~~comprising~~ containing a plurality of integrated and removable software control portions, wherein each respective software control portion corresponds to a certain hybrid electric vehicle drive system functionality such that the corresponding vehicle drive system functionality may be changed by removing one or more of the integrated software control portions and replacing it with a substitute software control portion, wherein the integrated software control portions contained within the controller are replaceable without removing the entire controller.

2.   (Original) The modular vehicle system controller of claim 1 wherein said plurality of portions includes a vehicle mode control portion which is effective to select an operating mode of said vehicle.

3.   (Original) The modular vehicle system controller of claim 2 wherein said plurality of portions further includes an output torque requestor control portion which is effective to receive torque commands from a plurality of vehicle subsystems and to determine a total output torque.

4.   (Original) The modular vehicle system controller of claim 3 wherein said hybrid electric vehicle includes a battery pack and wherein said plurality of control portions further includes a battery management control portion which is effective to control opening and closing of contactors within the battery pack, monitor the battery pack for faults, and process the battery pack power limits.

5.   (Original) The modular vehicle system controller of claim 4 wherein said plurality of control portions further includes a driver information control portion which

is effective to receive signals from vehicle sensors and to calculate vehicle operating data which is conveyed to a driver of said vehicle.

6.   (Original) The modular vehicle system controller of claim 5 wherein said hybrid electric vehicle includes at least one power source, and wherein said plurality of control portions further includes an energy management control portion which is effective to control the delivery of power to said vehicle by said at least one power source.

7.   (Original) The modular vehicle system controller of claim 6 wherein said plurality of control portions further comprises a brake system control portion which controls regenerative and engine compression braking functions within said vehicle.

8.   (Original) The modular vehicle system controller of claim 7 wherein said plurality of control portions further comprises a torque estimation control portion which estimates an amount of torque produced by said at least one power source.

9.   (Original) The modular vehicle system controller of claim 8 wherein said at least one power source comprises an internal combustion engine.

10.   (Original) The modular vehicle system controller of claim 9 wherein said plurality of control portions further comprises an engine control portion which controls a process and timing of when to startup and shutdown said internal combustion engine.

11.   (Currently Amended) A method of organizing a vehicle system controller for use with a hybrid electric vehicle, said method comprising the step of:

partitioning said controller into a plurality of integrated and removable software control portions, each respective control portion corresponding to a particular hybrid electric vehicle drive system functionality.

12.   (Original) The method of claim 11 wherein said step of partitioning said

controller into a plurality of removable control portions, each of said plurality of control portions corresponding to a particular vehicle functionality further comprises the step of:

logically grouping said plurality of control portions into functional groups.

13.   (Original) The method of claim 11 wherein each of said plurality of control portions represents a removable hardware portion.

14.   (Original) The method of claim 11 wherein each of said plurality of control portions represents a removable software portion.

15.   (Currently Amended) A method of controlling a plurality of systems within a hybrid electric vehicle, said method comprising the steps of:

logically grouping said plurality of systems into functional hybrid electric vehicle drive system groups;

providing a vehicle system controller having a modular architecture;

providing a plurality of removable modular system control <u>software</u> portions corresponding to each of said functional hybrid electric vehicle drive system groups; and

~~selectively coupling~~ <u>integrating</u> said plurality of modular system control portions ~~to~~ <u>within the modular architecture of</u> said vehicle system controller<u>, wherein the control portions are ~~may~~ be removed from the architecture of the vehicle system controller without removing the vehicle system controller from the vehicle</u>.

16.   (Original) The method of claim 15 wherein each of said plurality of modular control portions represents a removable hardware portion.

17.   (Original) The method of claim 15 wherein each of said plurality of modular control portions represents a removable software portion.

18.   (Original) The method of claim 15 wherein said step of logically grouping said plurality of systems into functional groups further comprises the step of:

maintaining a hierarchical control architecture for said plurality of systems.